Issue 750

K-STATE Research and Extension

Extension Agronomy

eUpdate

05/31/2019

These e-Updates are a regular weekly item from K-State Extension Agronomy and Kathy Gehl, Agronomy eUpdate Editor. All of the Research and Extension faculty in Agronomy will be involved as sources from time to time. If you have any questions or suggestions for topics you'd like to have us address in this weekly update, contact Kathy Gehl, 785-532-3354 kgehl@ksu.edu, or Dalas Peterson, Extension Agronomy State Leader and Weed Management Specialist 785-532-0405 dpeterso@ksu.edu.

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1. Late planting of soybeans: Management considerations

Soybean planting is underway in Kansas but is considerably behind last year's growing season. In the latest Crop Progress and Condition report from Kansas Agricultural Statistics on May 28, soybean planting was 22% complete, well behind from 2018 (63%) and behind the long-term average of 41%.

Looking back a little to the historical planting dates for our state, in recent decades Kansas producers have been planting soybeans slightly earlier -- at the rate of about one-third day per year (Figure 1). In the past three growing seasons (2015-17), however, the "50% planting date" mark was achieved at a similar time (first week of June) statewide. Moreover, the same "50% planting date" mark was attained in 1980 as this current growing season, averaging 50% planting progress by June 1. Nonetheless, for this current growing season (2019), planting date is way delayed with less than 25% of the soybean planted. The largest delay experienced in Kansas was in 1982 with 50% achieved close to the end of June.

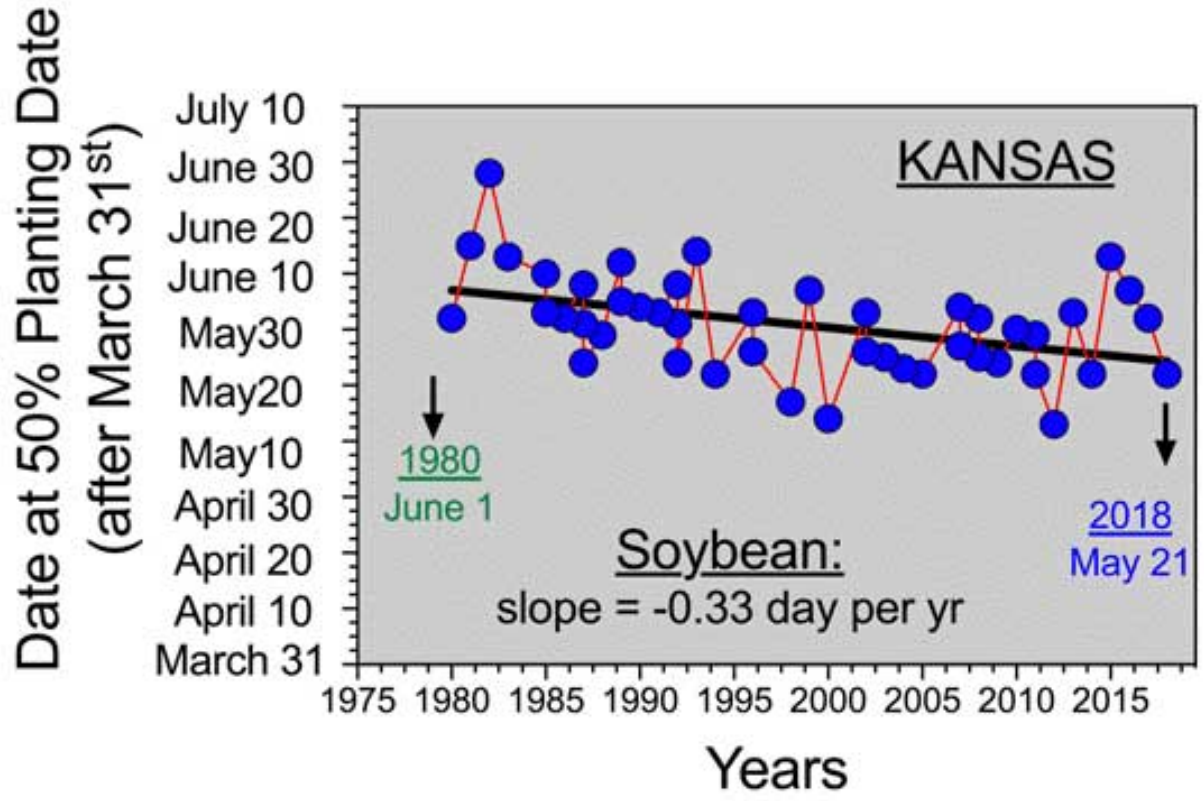


Figure 1. Trend in the date at which 50% of planting progress was achieved for soybean from 1980 to 2018 in Kansas. Source: USDA-NASS.

In places where soybean planting has been delayed (or in double crop soybean systems), producers should consider a few key management practices. Planting soybeans in the right soil conditions is essential for establishing an adequate soybean canopy and improving chances to increased yield potential.

Figure 2. Late-planted soybeans (June 10) into adequate soil conditions. Photo by Ignacio A. Ciampitti, K-State Research and Extension.

Maturity group factor: From our 'planting date x maturity group' study in 2014, 2015, and 2016, late planting did not clearly result in a yield reduction at the dryland sites, and caused only a minimal yield reduction at the irrigated site. Medium maturity groups (ranging from 3.8 to 4.8) yielded better, depending on the site and growing season evaluated (Figures 3, 4, and 5). More information related to this study can be found in Issue 743 of the eUpdate on April 19, 2019 in the article "Soybean planting dates and maturity groups: K-State recommendations".

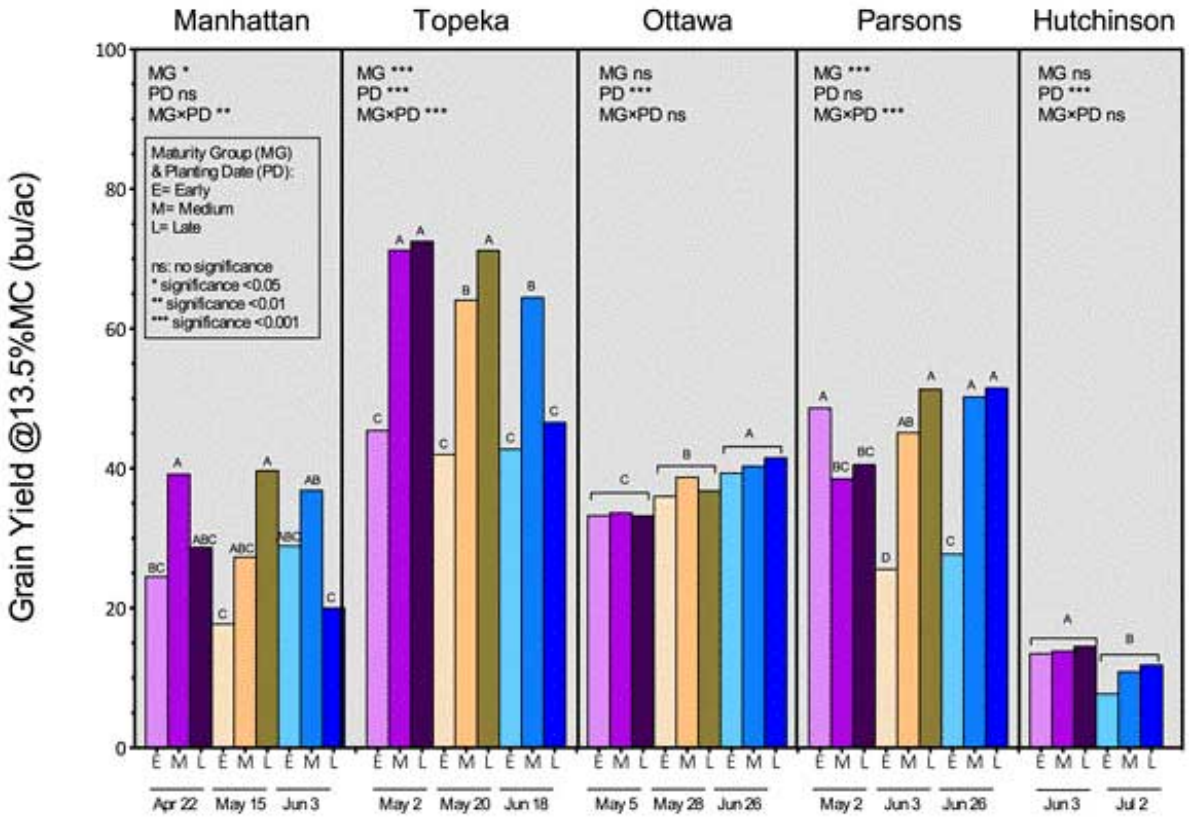


Figure 3. Soybean yields with different planting dates (early, mid, and late) and maturity groups (E = early, M = medium, L = late maturing groups) at five locations across Kansas for the 2014 growing season.

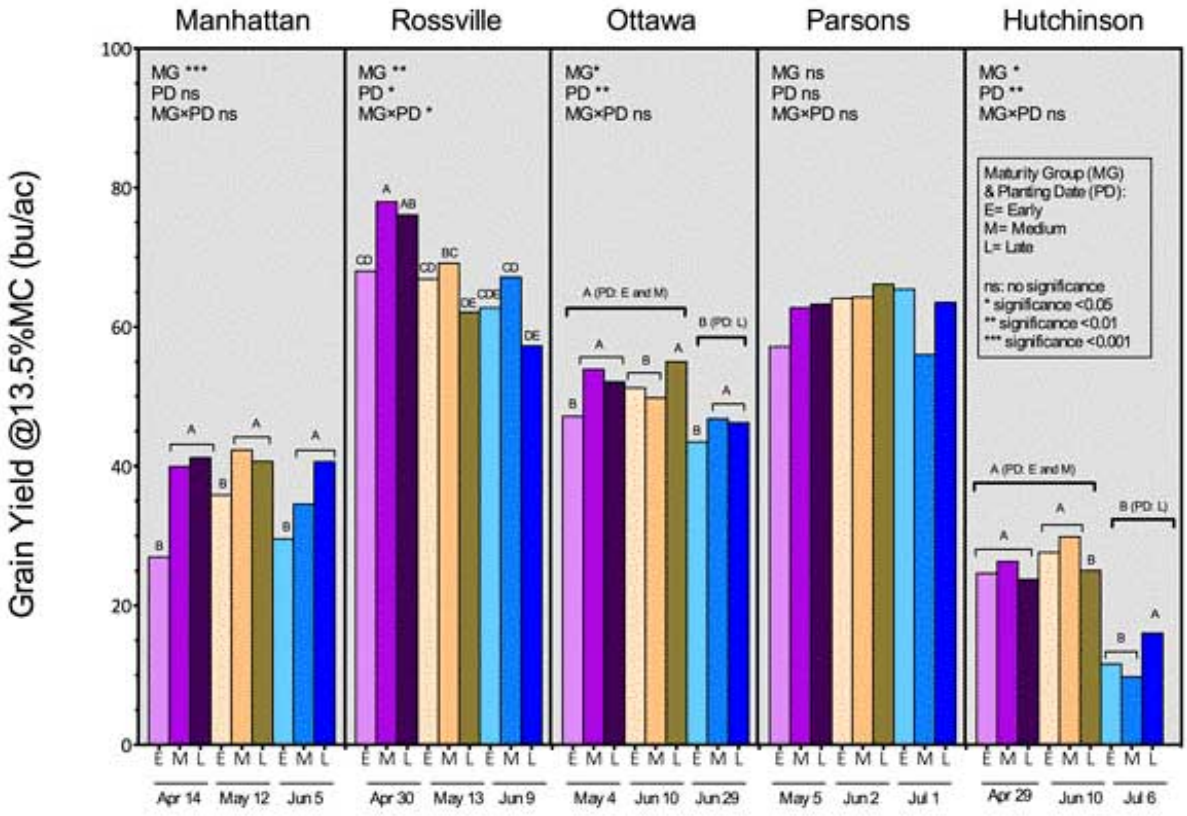


Figure 4. Soybean yields with different planting dates (early, mid, and late) and maturity groups (E = early, M = medium, L = late maturing groups) at five locations across Kansas for 2015 growing season.

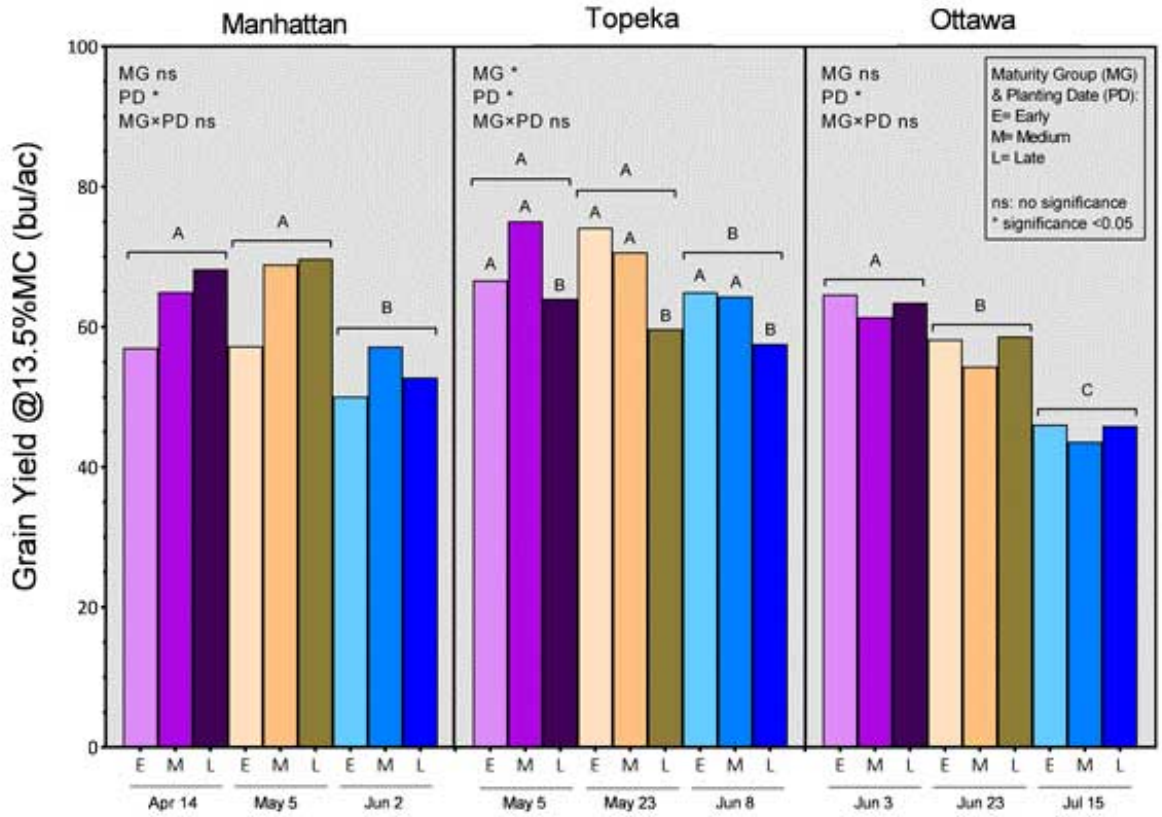


Figure 5. Soybean yields with different planting dates (early, mid, and late) and maturity groups (E = early, M = medium, L = late maturing groups) at three locations across Kansas for 2016 growing season.

Seeding rate factor: Increasing the seeding rate of late-planted soybeans by 10-20% as compared to the optimal seeding rate can help compensate for the shortened growing conditions. Research information on seeding rate and late planting of soybeans is currently being investigated further, with more updates on this topic in future issues of the Agronomy eUpdate. The same soybean cultivar planted early in the planting window, under normal conditions, will develop nearly 50% more productive nodes than when planted in late June: 19-25 nodes when planted early vs. 13-16 nodes when planted late. For soybean seeding rates and optimum plant populations, see Agronomy eUpdate Issue 745, May 3, 2019.

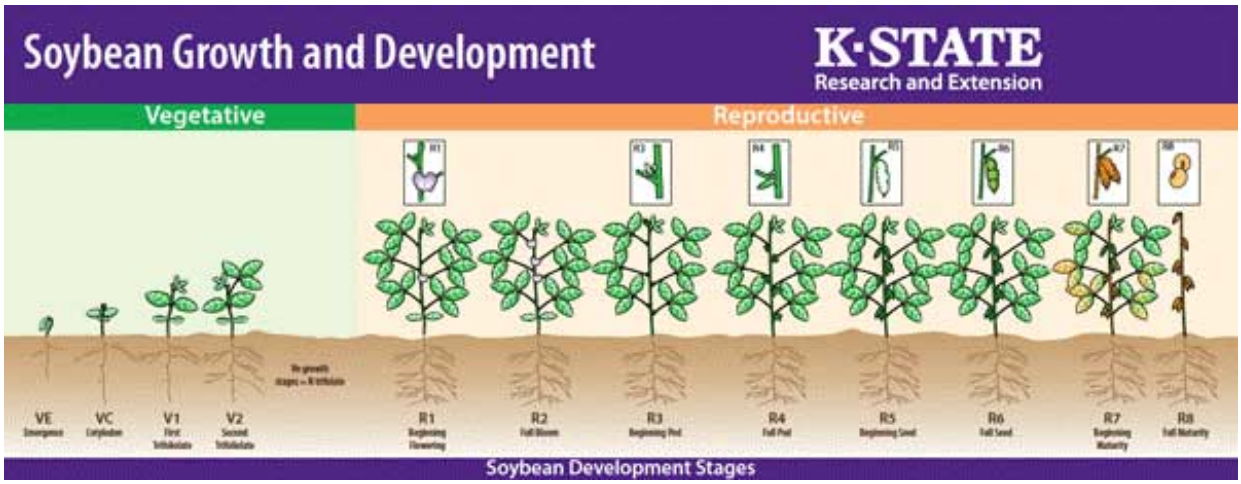
Row spacing factor: Information on late-planted soybeans across multiple row spacing suggests that narrow-rows (e.g. 7" or 15" vs. 30") can hasten canopy closure, increasing season-long light interception, weed suppression, and potentially improving biomass and final yield. In some cases, the likelihood of a positive yield response to narrow rows increases as the planting is delayed later in the season.

Finally, proper identification of soybean growth stages can make a difference in yield. We have worked with the United Soybean Board and the Kansas Soybean Commission recently to produce a

soybean growth and development chart. It can be downloaded at:

https://www.bookstore.ksre.ksu.edu/pubs/MF3339.pdf

More information about key aspects of each growth stage and management practices can be found in that soybean chart.



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2. Diagnosing rootless corn syndrome

Wet conditions this spring could lead to some issues in corn that may start showing up over the next few weeks. For example, producers may be seeing corn that is falling over or flopping in the wind this season. Occasionally plants may be standing upright, but exhibit wilting or stunting symptoms.

To diagnose the problem, start by digging up some plants and examining the root system. Corn in the V4 to V6 stages and beyond should have a well-established secondary root system. These are larger and thicker than the primary roots. If the corn plants have not established a viable secondary, or nodal, root system, the problem is often termed "rootless" or "floppy" corn.

Figure 1. Plant with poorly developed secondary root system. Crown was exposed above soil surface. Photo by K-State Research and Extension.

Figure 2. Plants with adequate (left) and poor (right) root development. Photo by Ignacio Ciampitti, K-State Research and Extension.

When corn germinates, the first roots to emerge from the seed are the primary, seminal, or seed roots. These roots support the plant through emergence and the appearance of the first few leaves. At emergence, exposure of the coleoptile to light will cause it and the mesocotyl to stop growth and will position the crown at ¾ to 1 inch or more below the soil surface. As the plant grows, the first four or five nodes do not elongate, keeping the growing point below the soil surface until V6 when the stem begins to elongate rapidly.

Figure 3. Plants with poor root development (left), sidewall compaction issues, and delayed development of root systems (right). Photos by Stu Duncan, K-State Research and Extension.

The roots that develop from these compressed nodes at the crown form the secondary root system. This is a bit confusing because this "secondary" root system is of *primary* importance for the rest of the life of the corn plant. It is called secondary because it is the second to appear chronologically. These secondary roots rapidly take over water and nutrient uptake and are important for anchoring the plant as it moves through the V4 to V6 growth stages and beyond. If something prevents establishment of these secondary roots, the plants can fall over or flop in the wind or the plants may be stunted or wilted.

Several situations may cause poor secondary root development:

- Saturated soils may prevent adequate root development.
- If the surface soil dries rapidly just as the secondary roots begin to grow, the roots desiccate and the tips die before they reach wetter soil below.
- If the crown becomes exposed for any reason, the secondary roots can dry out and die before they grow into the soil. Crowns can be exposed if heavy rains have compacted the seedbed or washed away the soil (erosion) from around the developing crown.
- Occasionally the mesocotyl (the connection between the seed and the crown) will continue to grow after the coleoptile emerges from the soil, causing the crown to be positioned close to or at the soil surface. The reasons for continued growth of the mesocotyl and the resulting exposed position of the crown are poorly understood. Some believe it could be due to growth-regulating herbicides (e.g., 2,4-D, dicamba) or cloudy conditions, but cause-effect relationships have not been well established. Several instances of exposed crowns have been documented with no application of growth-regulating herbicides.
- Shallow planting could be the cause of the problem in a few cases. Although shallow planting can cause exposed crowns and poor secondary root development, most fields observed this spring with "rootless" corn have been planted at an adequate depth.

Is there any hope for "rootless" or "floppy" corn? Possibly, depending on whether soils are able to dry out enough to provide good aeration for the roots. Even if plants have fallen over, new secondary roots can continue to form and establish a viable root system if soil aeration and moisture conditions are adequate. Inter-row lay-by cultivation to move soil around the exposed crowns can help if not too many plants have fallen over.

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3. Update on planting progress for corn and soybeans - May 28, 2019

Corn planting in Kansas and the rest of the U.S. Corn Belt is proceeding following one of the slowest rates ever recorded. For Kansas, corn planted progress moved from 61 to 70 percent in one week from May 20 to 28 (USDA Kansas Crop Progress and Condition Report). Similar progress has been observed for Iowa and Nebraska, but Illinois, Indiana, and Ohio are still quite behind (Figure 1). For soybeans planted progress is 22 percent, behind the 63 percent from last year and from the 41 percent 5-year average (Figure 1). There has been similar progress for Nebraska but large departures from planted progress for Iowa, Missouri, Illinois, Indiana, and Ohio.

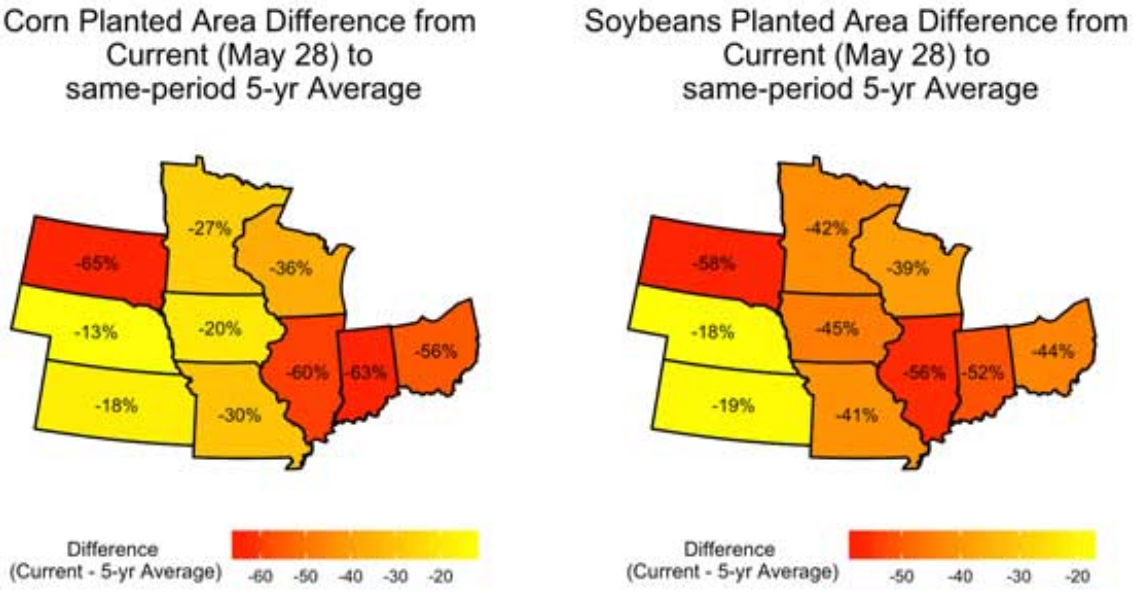

Figure 1. Progress of corn (right) and soybeans (left) as planted area (%) from USDA Crop Progress Report on May 28, 2019.

Saturated soil conditions impacted the expected number of suitable working days in a given period of time. Knowing how many suitable working days might be available to conduct fieldwork for a given crop operation impacts crop choice and machinery investment decisions. The most active planting dates for corn are usually between April 15 and May 15 (20th to 80th percentile, respectively) and for soybeans and grain sorghum planting, those dates are from May 15 to June 20 (20th to 80th percentile, respectively) (2010 USDA NASS handbook).

For Kansas, since the week of April 29 (Figure 2), the number of days suitable for fieldwork has been declining, presenting at the lowest point with less than 2 days suitable to conduct any fieldwork, which in many situations was potentially only 1 day before the next rain event.

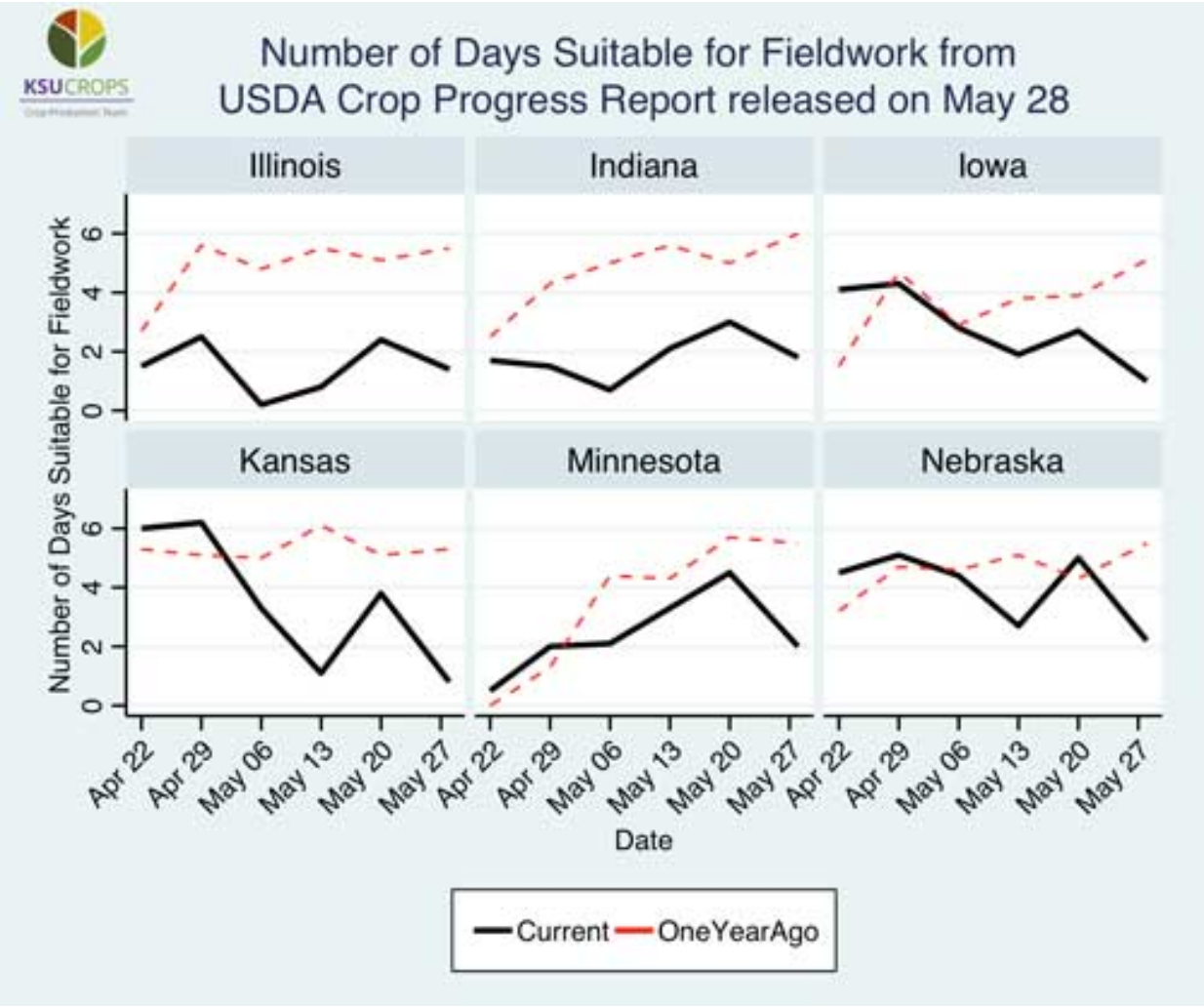

Figure 2. Number of days suitable for fieldwork from USDA Crop Progress Report on May 28, 2019.

As previously discussed, the number of days suitable for fieldwork remained below normal relative to the average for the last year across the main corn producing states. In parallel, the topsoil moisture conditions across many states is reflecting adequate-to-surplus moisture. The states presenting the largest delay in corn planted progress are also the ones documenting close to or more than 50% of surplus of topsoil moisture conditions. For Kansas, the topsoil moisture condition, reflected as an average of the state-level cropland area, reached the maximum point of close to 25% of surplus topsoil moisture condition from May 13 (Figure 3). This reflects the main challenge faced by farmers for planting crops during these unusually wet conditions. Overall, the surplus of topsoil moisture increased for all the states from May 20 to May 28.

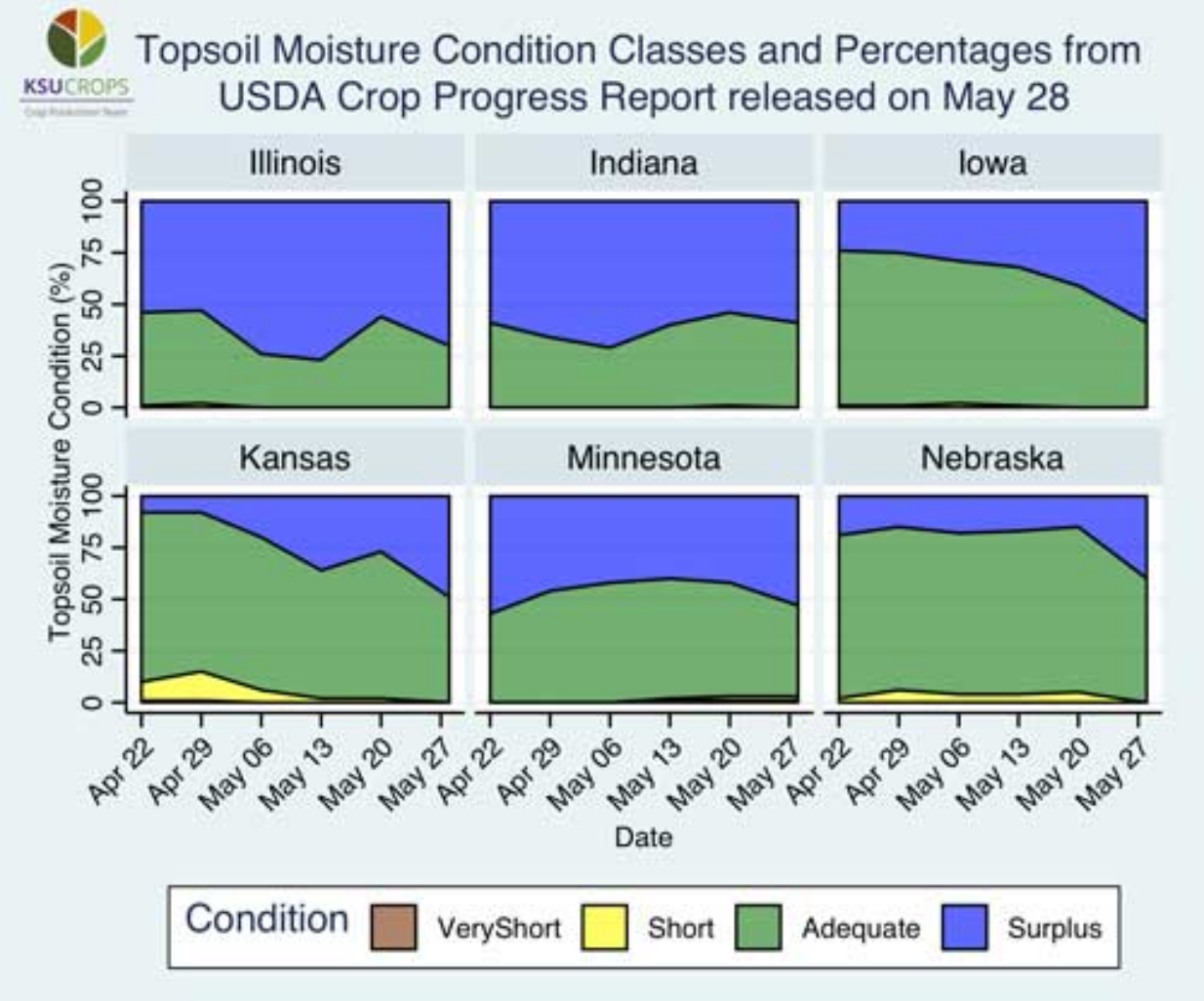

Figure 3. Topsoil moisture conditions classes and percentages from USDA Crop Progress Report on May 28, 2019.

In summary, both corn and soybeans are trailing their respective five-year and last-year progress averages last week, with corn being well behind.

Depending on your location, delayed planting will be a normal situation considering the weather already experienced this spring. Again, crop insurance considerations and the main agronomic practices to achieve a successful crop will be critical factors guiding producers' planting decisions.

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4. Double crop options after wheat

Double cropping after wheat harvest can be a high-risk venture. The available growing season is relatively short. Heat and/or dry conditions in July and August may cause problems with germination, emergence, seed set, or grain fill. Ample soil moisture this year can aid in establishing a successful crop after wheat harvest.

The most common double crop options are soybean, sorghum, and sunflower. Other possibilities include summer annual forages and specialized crops such as proso millet or other short-season summer crops – even corn. Cover crops are also an option for planting after wheat.

One major consideration before deciding to plant a double crop or cover crop after wheat is the potential for herbicide carryover. Cover crops can be challenging in this regard. There is little or no mention of rotational restrictions for specific cover crops on the labels of most herbicides. If a crop is not listed on the label, that does not mean there are no restrictions. Generally, there are statements on most labels that indicate "no other crops" should be planted for a specified amount of time, or that a bioassay must be conducted prior to planting the crop Sulfonylurea tolerant soybeans (STS, SR, or Bolt) are the most tolerant rotational crop to residual sulfonylurea herbicides (Finesse, Glean, Ally, Amber, Rave, and others), followed by sorghum, and non-STS soybeans. Most mustard type crops, corn, alfalfa, and sunflowers are very susceptible to SU herbicide residues.

Burndown of existing summer annual weeds at planting time is essential for successful double-cropping. Glyphosate used to be effective, but if glyphosate-resistant kochia and pigweeds are present, alternative treatments such as paraquat may be required.

Management considerations, production costs, and yield expectations for several double crop options are discussed below.

Soybean

Soybeans are probably the most commonly used crop for double cropping, especially in central and eastern Kansas (Figure 1). With glyphosate-resistant varieties, often the only production cost for planting double crop soybeans in recent years has been the seed, an application of glyphosate, and the fuel and equipment costs associated with planting and harvesting. However, with the development of glyphosate-resistant weeds, additional herbicides may be required to achieve acceptable control and minimize the risk of further development of resistant weeds.

Figure 1. Soybeans planted as a double crop following wheat at the Ashland Bottoms Research Farm in Manhattan. Photo by Kraig Roozeboom, K-State Research and Extension.

Weed control. The cost for weed control cannot really be counted against the soybeans, however, since that cost should occur whether or not a soybean crop is present. In fact, having soybeans on the field may even reduce herbicide costs compared to leaving the field fallow. Still, it is highly recommended to apply a pre-emergence residual herbicide before or at planting time, especially if weed resistance to glyphosate has been a problem. Later in the summer, a healthy soybean canopy may suppress weeds enough that a late-summer post-emergence application may not be needed.

Variety selection for double cropping is important. Soybeans flower in response to a combination of temperature and day length, so shifting to an earlier-maturing variety when planting late in a double crop situation will result in very short plants with pods that are close to the ground. Planting a variety with the same or perhaps even slightly later maturity rating (compared to soybeans planted at a typical planting date) will allow the plant to develop a larger canopy before flowering. Planting a variety that is too much later in maturity, however, increases the risk that the beans may not mature before frost, especially if long periods of drought slow growth. The goal is to maximize the length of the growing season of the crop, so prompt planting after wheat harvest time is critical. The earlier you can plant, the higher the yield potential of the crop if moisture is not a limiting factor.

Fertilizer considerations. Adding some nitrogen (N) to double crop soybeans may be beneficial if the previous wheat yield was high and depleted soil N. A soil test before wheat harvest for N levels is recommended. Use no more than 30 lbs/acre of N. It would be ideal to knife-in the fertilizer. If that is not possible, banding it on the soil surface would be acceptable. Do not apply N in the furrow with soybean seed as severe stand loss can occur.

Seeding rates and row spacing. Recommended seeding rates for double crop soybeans are no different than for soybeans planted at a typical planting date in a given area or cropping system. Still, seeding rate can be slightly increased if soybeans are planted too late in order to increase canopy

development. Narrow row spacing (15-inch or less) has often resulted in a yield advantage compared to 30-inch rows in late plantings. Soybeans planted in narrow rows will canopy over more quickly than in wide rows, which is important when the length of the growing season is shortened. Narrow rows also offer the benefits of increasing early-season light capture, suppressing weeds and reducing erosion. On the other hand, the advantage of planting in wide rows is that the bottom pods will usually be slightly higher off the soil surface to aid harvest. The other consideration is planting equipment. Often no-till planters will handle wheat residue better and place seeds more precisely than drills, although the difference has narrowed in recent years.

What are typical yield expectations for double crop soybeans? It varies considerably depending on moisture and temperature, but yields are usually several bushels less than full-season soybeans. A long-term average of 20 bushels per acre is often mentioned when discussing double crop soybeans in central and northeast Kansas. Rainfall amount and distribution can cause a wide variation in yields from year to year. Double crop soybean yields typically are much better as you move farther southeast in Kansas, often ranging from 20 to 40 bushels per acre.

Sorghum

Sorghum is another double crop option. Unlike soybeans, sorghum hybrids for double cropping should be earlier maturing. Sorghum development is primarily driven by accumulation of heat units and the double crop growing season is too short to allow medium-late or late hybrids to mature before the first frost in most of Kansas.

Late-planted sorghum likely will not tiller as much as early plantings and can benefit from slightly higher seeding rates than would be used for sorghum planted at an earlier date. Narrow row spacing is advised, especially if the outlook for rainfall is good.

A key component for estimation of N application rates is the yield potential. This will largely determine the N needs. It is also important to consider potential residual N from the wheat crop. This can be particularly important when wheat yields are lower than expected. In that situation, additional available N may be present in the soil.

Double crop sorghum planted into average or greater-than-average amounts of wheat residue can result in a challenging amount of residue to deal with when planting next year's crop. Nitrogen fertilizer can be tied up by wheat residue, so use application methods to minimize tie-up, such as knifing into the soil below the residue.

Weed control can be important in double crop sorghum. Warm-season annual grasses, such as crabgrass, can reduce double crop sorghum yields. Using a chloroacetamide-and-atrazine pre-emergence product may be key to successful double crop sorghum production.

No-till studies at Hesston documented 4-year average double crop sorghum yields of 75 bushels per acre compared to about 90 bushels per acre for full-season sorghum. A different 10-year study that did not have double crop planting but did compare early- and late-planting dates averaged 73 bushels per acre for May planting vs. 68 bushels per acre for June planting.

Sunflowers

Sunflowers can be a successful double crop option anywhere in the state, provided there is enough

moisture at planting time to get a stand. Sunflowers need more moisture than any other crop to germinate and emerge, so the biggest hurdle to sunflower production is getting a successful stand. Once that hurdle is overcome, sunflowers are more drought-tolerant than most crops so the chances of having a yield in any kind of environment are good.

When double cropping sunflowers, producers should use slightly lower seeding rates to reflect the lower yield expectations compared to full-season sunflowers. It is also necessary to use shorter-season hybrids so they bloom and mature before frost.

Weed control can be an issue with double crop sunflowers since herbicide options are limited, especially post-emergence. Thus, controlling weeds prior to sunflower planting is critical and may be complicated by the presence of glyphosate-resistant weeds and pre-plant restrictions with other herbicides. Consequently, double crop sunflowers may be most successful where glyphosate-resistant weeds are not present. Planting Clearfield or Express Sun sunflowers will provide additional post-emergence herbicide options, but ALS-resistant kochia and pigweeds still won't be controlled. Beyond, the product used in Clearfield sunflower, does have activity on small annual grasses as well as broadleaves (except for ALS-resistant biotypes).

Summer annual forages

With mid-July plantings, and where herbicide carryover issues are not a concern, summer annual sorghum-type forages are also a good double crop option. A study planted July 21, 2008 near Holton, when summer rainfall was very favorable, provided yields of 2.5 to 3 tons dry matter/acre for hybrid pearl millet and sudangrass at the low end to 4 to 5 tons dry matter/acre for forage sorghum, BMR forage sorghum, photoperiod sensitive forage sorghum, and sorghum x sudangrass hybrids. Earlier plantings may be able to produce even more tonnage, as long as there is adequate August rainfall.

One challenge with late-planted summer annual forages is getting them to dry down when harvest is delayed until mid- to late-September. Wrapping bales or bagging to make silage are good ways to deal with the higher moisture forage this late in the year.

Corn

Is double crop corn a viable option? Corn is typically not recommended for June or July plantings because yield is usually substantially less than when planted earlier.

Typically, corn planted in mid-July has a difficult time pollinating and seldom receives sufficient heat units to fill grain before frost. This was illustrated in a study at the South Central Experiment Field in 2007 where 100 to 112 RM corn planted in late June yielded only 40 bushels per acre compared to over 130 bushels per acre for an April planting. In Manhattan in 2007, the same hybrids planted on June 25 yielded over 130 bushels per acre, which is certainly acceptable but substantially less than the 150 bushels per acre for earlier plantings.

Very short-season corn hybrids (80 to 95 RM) have the greatest chance of maturing before frost in double crop plantings, but generally have less yield potential than hybrids that are 100 RM or more used for full-season plantings. Short-season hybrids often will set the ear fairly close to the ground, increasing the difficulty of harvest. Glyphosate-resistant hybrids will make weed control easier with double crop corn, but there may still be problems with late-emerging summer weeds such as pigweeds, velvetleaf, and large crabgrass. Keep in mind that corn is very susceptible to carryover of

most residual ALS herbicides used in wheat.

Volunteer wheat control

One of the issues with double cropping often overlooked by producers is the potential for volunteer wheat in the crop following wheat. If volunteer wheat emerges and goes uncontrolled, it can cause serious problems for nearby planted wheat fields in the fall.

Volunteer wheat can generally be controlled fairly well with glyphosate in Roundup Ready crops. It can also be controlled in sunflowers and soybeans with the labeled post-emergence grass herbicides such as Assure II, Select, or Poast Plus, but control is reduced during times of drought stress. Atrazine can provide control of volunteer wheat in corn and sorghum, but can be erratic depending on rainfall patterns.

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5. New publication on integrated pigweed management now available

A new weed control publication from the Department of Agronomy and K-State Research and Extension is now available. This publication, **MF3448 "Integrated Pigweed Management"** aims to assist producers in developing an integrated strategy to manage pigweed in summer crops and fallow periods. Used in conjunction with local expertise, this guide can help tailor a targeted strategy for each field.

Pigweed is a summer annual broadleaf that emerges from April through October in Kansas with the majority emerging in May and June. Although there are numerous pigweed species, this publication focuses on Palmer amaranth and waterhemp. Pigweed can cause drastic yield losses and harvesting difficulties in summer crops. Controlling emerged pigweed can be challenging due to its rapid growth rate, which can easily exceed 1 inch in height per day. Pigweed is a prolific seed producer with large plants capable of producing nearly one million seeds.

What is "Integrated Pigweed Management"?

An integrated approach combines many different control tactics such as crop rotation, herbicides, tillage, and row spacing to manage pigweeds in a cropping system and has three main purposes.

1. Decrease the risk of selecting for resistant biotypes to an herbicide or other management practice.
2. Reduce pigweed seed population.
3. Increase long-term profitability and sustainability.

With enough selection pressure, it is possible to select for pigweed resistant to cultural or mechanical practices. For example, shifting crop planting date earlier may select for a biotype that emerges later in the season after POST herbicides are applied, or by implementing sequential tillage operations in fallow, a shift toward alternative seed dormancy mechanisms could occur. With an integrated approach, it is less likely for these types of shifts to occur because the selection pressure is shared among various tactics.

When developing an integrated pigweed management plan, consideration should first be given to cultural control tactics. It is not always possible or applicable to implement all strategies in certain systems; therefore, consideration must be given to how each tactic fits in combination with the other goals of the cropping system (Figure 1).

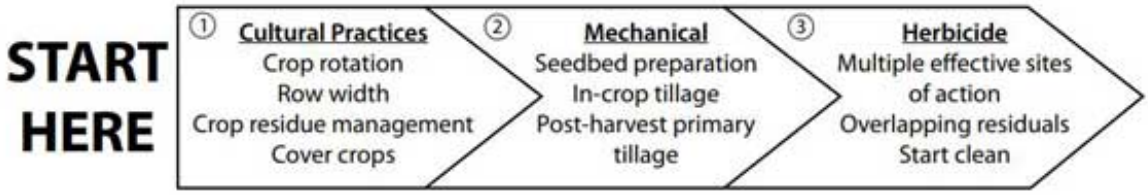

Figure 1. When developing an integrated pigweed management strategy, cultural practices should be considered first. Too often, it is easy to place all consideration on herbicide and neglect the potential benefits of cultural and mechanical tactics. Graphic from MF

3448, Integrated Pigweed Management, K-State Research and Extension.

Cultural practices are discussed in more detail in the full publication. They include: crop rotation, crop cultivar selection and planting date, cover crops, row spacing, field border maintenance, and seed transfer.

Building an Integrated Strategy

Combining control tactics yields the best results. When developing these recommendations, have realistic expectations and make considerations from a cropping systems point of view. It can be difficult to see direct economic profit from some cultural practices such as narrow row spacing, cover crops, or crop rotation; however, long-term gain will be realized through delaying the onset of herbicide resistance and reduced weed seed production.

Developing Herbicide Recommendation for Pigweed Management

A common pitfall when trying to justify the cost of integrated strategies is through a reduction in herbicide use. This concept is not supported with research, and all integrated strategies still must be combined with a comprehensive herbicide program. Research shows herbicide programs targeting pigweed must have three key components (Figure 2).

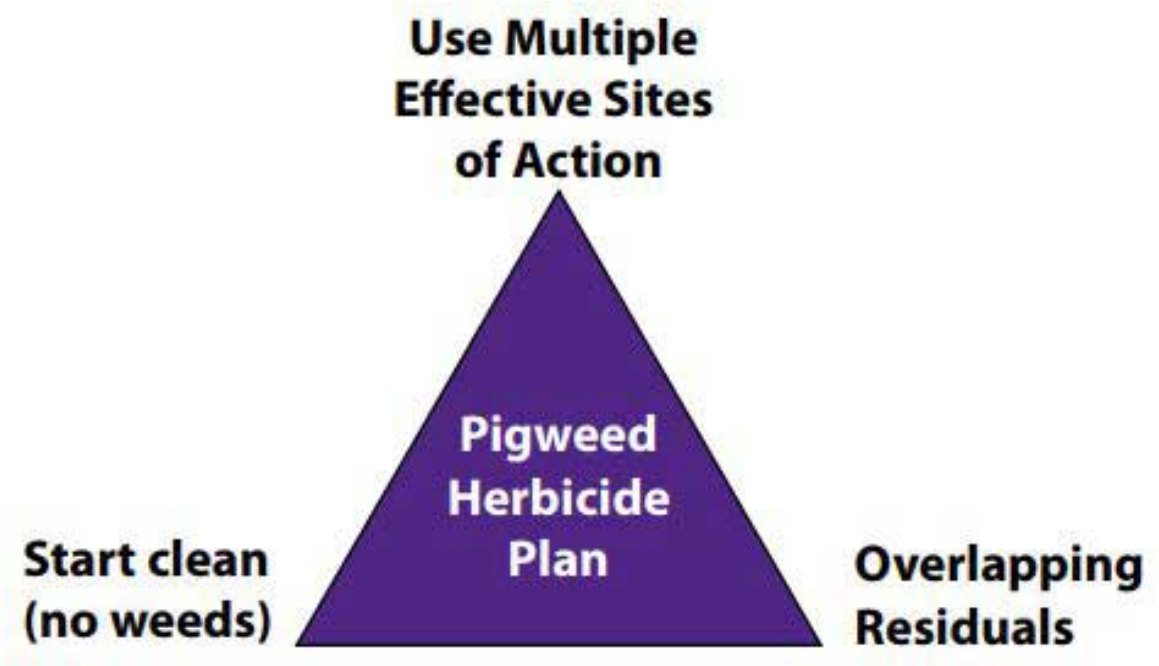

Figure 2. Three key components that should be found in every pigweed herbicide program. Graphic from MF 3448, Integrated Pigweed Management, K-State Research and Extension.

More information about each of these three components can be found in the publication.

The full publication, "Integrated Pigweed Management", is available online at: https://www.bookstore.ksre.ksu.edu/pubs/MF3448.pdf.

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6. Update on prevented plant decisions

Last week's eUpdate referenced an article by Monte Vandeveer, K-State Agricultural Economist, that discussed Prevented Planting rules and options for producers facing wet planting conditions for their insured corn crop. A number of new developments, particularly the May 23rd announcement of additional Market Facilitation Program payments, necessitated an updated discussion of farmer options.

The updated article can be found online at: http://agmanager.info/crop-insurance/risk-management-strategies/update-prevented-planting-decisions-and-related-government.

Additional risk management information is available at: http://agmanager.info/crop-insurance/risk-management-strategies.

Questions can be directed to Monte Vandeveer at montev@ksu.edu.

7. K-State wheat plot tours for June 3-7 and June 10-14, 2019

The first two weeks of June feature several wheat plot tours in Kansas. These are the last tours this spring. Producers wanting to learn about the different varieties can choose to attend one (or several) plot tours in their county or agricultural district.

The plot tours generally include a discussion of wheat conditions across the state, as well as tips on what to look for when selecting wheat varieties. New and upcoming varieties are discussed, as well as older and more established ones, and a discussion of how all these varieties are responding to this growing season's conditions.

For the week of June 3 - 7, the plot tour locations include:

Monday, 6/3/2019, 6:00 pm
Location: Hugoton, Stevens Co.
Contact: Ron Honig, rhonig@ksu.edu
Directions: Located 6 miles north of Hugoton on Highway 25. Legal description is SW 10-32-37.

Tuesday, 6/4/2019, 6:00 pm
Location: Scott City, Scott Co.
Contact: John Beckman, jbeckman@ksu.edu
Directions: From the intersection of HWY 96 and HWY 83, travel east 4 miles on HWY 96. Turn north on Pawnee Road and drive 1/4 mile. Plots across the railroad tracks on the east side. Meal by Norder supply afterwards.

Wednesday, 6/5/2019, 8:30 am
Location: Belleville, Republic Co.
Contact: Tyler Husa, thusa@ksu.edu
Directions: NCK Experiment Field Belleville Variety Trial Plots. Location: 1.25 miles West of Belleville on US Hwy. 36. Breakfast: Juice and Kolache provided by Belleville Chamber & Main Street/Astra Bank

Wednesday, 6/5/2019, 12:00 pm
Location: Clyde, Cloud Co.
Contact: Tyler Husa, thusa@ksu.edu
Directions: LeClair Seed & Clifton/Clyde FFA Variety Trial Plots. Location: 2 mi. south of Clyde on 280 Rd., 1 mi. east on Quail Rd., ¼ mi. north on 290 Rd. Lunch: Provided by Clifton/Clyde FFA & LeClair Seed

Wednesday, 6/5/2019, 6:00 pm
Location: Belleville, Republic Co.
Contact: Tyler Husa, thusa@ksu.edu
Directions Polansky Seed Wheat Plot. Location: Polansky East Location (1/2 mile east of Belleville on Hwy 36). Supper: Provided by Polansky Seed at the East Plant, US Hwy 36 following tour.

Thursday, 6/6/2019, 10:30 am
Location: Idana, Clay Co.
Contact: Tyler Husa, thusa@ksu.edu
Directions: Tom Meek Wheat Plot. Location: ¼ mi. East of Idana, Kansas on 16th Road. Breakfast: Juice

and Rolls.

Thursday, 6/6/2019, 6:00 pm
Location: Palmer, Washington Co.
Contact: Tyler Husa, thusa@ksu.edu
Directions: Ohlde Seed Variety Trial Plots. Location: ½ mi. west of the Ohlde Seed Farms on 4th Rd.
Supper: Provided by Ohlde Seed following the tour.

For the week of June 10 - 14, the plot tour locations include:

Monday, 6/10/2019, 7:00 am
Location: Oberlin, Decatur Co.
Contact: Keith VanSkike, kvan@ksu.edu
Directions: Breakfast at Decatur County 4-H building. Plot located 3 1/4 miles west of Oberlin at Roger May.

Monday, 6/10/2019, 7:00 pm
Location: Sheridan/Decatur, Dresden Co.
Contact: Keith VanSkike, kvan@ksu.edu
Directions: 2.5 miles east of #9 and 23 Hwy intersection. East of mile marker #2 on Hwy 9 on the north side of the road.

Tuesday, 6/11/2019, 6:30 am (MT)
Location: Sharon Springs, Wallace Co.
Contact: Jeanne Falk-Jones, jfalkjones@ksu.edu
Directions: 6:30 AM (MT) breakfast at CAB in Sharon Springs (on the fairgrounds). 7:30 AM plot tour at Mai Farms (9 miles south of Sharon Springs on Hwy 27 to Field Rd; 4 miles east and 1/4 mi south)

Tuesday, 6/11/2019, 10:00 am (MT)
Location: Weskan, Wallace Co.
Contact: Jeanne Falk-Jones, jfalkjones@ksu.edu
Directions: 3 mi west of Weskan on Hwy 40 to Rd 3; 5 1/2 mi south at E&H Farms

Tuesday, 6/11/2019, 4:00 pm (MT)
Location: Kanorado, Sherman Co.
Contact: Truman Hooker/Jeanne Falk-Jones, jfalkjones@ksu.edu
Directions: 4-H wheat plot tour. At Kanorado, go west after crossing the RR tracks, north on Locust St. and continue north to the end of the street.

Tuesday, 6/11/2019, 5:30 pm (MT)
Location: Goodland, Sherman Co.
Contact: Jeanne Falk-Jones, jfalkjones@ksu.edu
Directions: 8 mi north of Goodland on Hwy 27; plot is east of scale house at F&J Farms. Supper to follow at the 4-H Building

Wednesday, 6/12/2019, 7:30 am
Location: Levant, Thomas Co.
Contact: Madison Mackley, mmackley@ksu.edu
Directions: 9 miles south of Levant on CR 11. Tour will begin at the Solomon Creek Farms shop where refreshments will be served & then proceed to the plot.

Wednesday, 6/12/2019, 5:30 pm
Location: Wheeler, Cheyenne Co.
Contact: Jeanne Falk-Jones, jfalkjones@ksu.edu
Directions: Sunny Crest Farms (5 mi south of Wheeler on Hwy 27 and 1/4 mi west). Supper to follow at American Implement in Wheeler.

Thursday, 6/13/2019, 5:30 pm
Location: Atwood, Rawlins Co.
Contact: Stephanie Kramer, smelhus@ksu.edu
Directions: From the intersection of highways 36 and 25 in Atwood, go north on Hwy 25, 4 miles. The plot is located on the east side of the road, just north of Kastens' grain bins.
Refreshments/sandwiches will be served in the field. Please RSVP by June 10 to Stephanie at 785-626-3192 or at the email listed above.

Romulo Lollato, Extension Wheat Specialist
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